



Evaluation of a heat vulnerability index on abnormally hot days: An environmental public health tracking study

Author(s): Reid CE, Mann JK, Alfasso R, English PB, King GC, Lincoln RA, Margolis HG, Rubado DJ, Sabato JE, West NL, Woods B, Navarro KM, Balmes JR
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Abstract:

BACKGROUND: Extreme hot weather conditions have been associated with increased morbidity and mortality, but risks are not evenly distributed throughout the population. Previously, a heat vulnerability index (HVI) was created to geographically locate populations with increased vulnerability to heat in metropolitan areas throughout the United States. **OBJECTIVES:** We sought to determine whether areas with higher heat vulnerability, as characterized by the HVI, experienced higher rates of morbidity and mortality on abnormally hot days. **METHODS:** We used Poisson regression to model the interaction of HVI and deviant days (days whose deviation of maximum temperature from the 30-year normal maximum temperature is at or above the 95th percentile) on hospitalization and mortality counts in five states participating in the Environmental Public Health Tracking Network for the years 2000 through 2007. **RESULTS:** The HVI was associated with higher hospitalization and mortality rates in all states on both normal days and deviant days. However, associations were significantly stronger (interaction p-value < 0.05) on deviant days for heat-related illness, acute renal failure, electrolyte imbalance, and nephritis in California, heat-related illness in Washington, all-cause mortality in New Mexico, and respiratory hospitalizations in Massachusetts. **CONCLUSION:** Our results suggest that the HVI may be a marker of health vulnerability in general, although it may indicate greater vulnerability to heat in some cases.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3346770>

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Temperature

Air Pollution: Ozone

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Climate Change and Human Health Literature Portal

Geographic Location:

resource focuses on specific location

United States

Health Impact:

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Injury, Morbidity/Mortality, Respiratory Effect, Urologic Effect, Other Health Impact

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): cerebrovascular disease

Other Health Impact: heat-related illness; internal causes of hospitalization except accidents, injuries, suicides, and homicides

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Elderly, Low Socioeconomic Status, Racial/Ethnic Subgroup

Other Racial/Ethnic Subgroup: non-white

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content